

IN THE CLAIMS:

The listing of claims replaces all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A computer implemented method comprising:
determining a ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) client to be multicast capable;
determining a layer 2 multicast channel from a layer 3 multicast channel; and
transmitting multicast traffic for the layer 2 multicast channel as PPPoE multicast traffic in a PPPoE multicast session to the PPPoE client.
2. (Currently Amended) The computer implemented method of claim 1 wherein the layer 2 multicast channel is an ~~Ethernet MAC~~Ethernet Media Access Control (MAC) address and the layer 3 multicast channel is an ~~IP address~~Internet Protocol (IP) address.
3. (Currently Amended) The computer implemented method of claim 1 wherein determining the ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) client to be multicast capable comprises receiving a session request message from the PPPoE client, the session request message including a tag indicating PPPoE multicast capability.

4. (Currently Amended) The computer implemented method of claim 1 wherein ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) multicast traffic identifies a PPPoE multicast session identifier and the layer 2 multicast channel.
5. (Currently Amended) The computer implemented method of claim 1 further comprising the ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) client listening for PPPoE multicast traffic on the layer 2 multicast channel.
6. (Currently Amended) The computer implemented method of claim 1 further comprising the ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) client decapsulating multicast traffic from PPPoE if the PPPoE client is listening on the layer 2 multicast channel.
7. (Currently Amended) A computer implemented method comprising:
translating a layer 3 multicast channel to a layer 2 multicast channel;
receiving a multicast packet;
encapsulating the multicast packet with a ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) encapsulation;
indicating the layer 2 multicast channel in the PPPoE encapsulation;
indicating a PPPoE multicast session identifier in the PPPoE encapsulation;
and
transmitting the encapsulated multicast packet.

8. (Original) The computer implemented method of claim 7 wherein the layer 2 multicast channel is an Ethernet Media Access Control address.
9. (Original) The computer implemented method of claim 7 wherein the layer 3 multicast channel is an Internet Protocol address.
10. (Currently Amended) The computer implemented method of claim 7 wherein the ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) multicast session identifier is a reserved PPPoE session identifier.
11. (Original) The computer implemented method of claim 7 wherein the multicast packet is a video packet.
12. (Original) The computer implemented method of claim 7 wherein the multicast packet is a collaboration application packet.
13. (Currently Amended) A network element comprising:
a control engine to host a ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) process and to translate a layer 3 multicast channel to a layer 2 multicast channel; and
a forwarding engine coupled with the control engine, the ~~control~~forwarding engine to receive a multicast packet encapsulated with a delivery protocol, to decapsulate the multicast packet from the delivery protocol

encapsulation, to encapsulate the multicast packet in a PPPoE encapsulation, to indicate the layer 2 multicast channel in the PPPoE encapsulation, to indicate a PPPoE multicast session identifier in the PPPoE encapsulation, and to transmit the PPPoE encapsulated multicast packet.

14. (Original) The network element of claim 13 wherein the control engine comprises a set of one or more processors and a memory.

15. (Original) The network element of claim 13 wherein the forwarding engine comprises a set of one or more processors and a memory.

16. (Original) The network element of claim 13 wherein the delivery protocol is Asynchronous Transfer Mode.

17. (Currently Amended) An apparatus comprising:
a network interface card to receive traffic and to listen for multicast traffic on a layer 2 multicast channel;
a ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) module coupled with the network interface card, the PPPoE module to indicate to the network interface card the layer 2 multicast channel, to receive PPPoE encapsulated multicast traffic on the layer 2 multicast channel from the network interface card, to decapsulate multicast traffic from PPPoE;
and

a processor coupled with the PPPoE module, the processor to process
multicast traffic decapsulated by the PPPoE module.

18. (Original) The apparatus of claim 17 wherein the layer 2 multicast channel is an Ethernet Media Access Control address.

19. (Original) The apparatus of claim 17 wherein multicast traffic is streaming video.

20. (Original) The apparatus of claim 17 wherein multicast traffic is traffic of a collaboration application.

21. (Currently Amended) A system comprising:
a network element to transmit notification of a multicast, to translate the
multicast's layer 3 channel to a layer 2 channel, to decapsulate traffic
of the multicast from a first delivery protocol, to encapsulate traffic of
the multicast with ~~PPPoE~~Point to Point Protocol over Ethernet
(PPPoE), to indicate a PPPoE multicast session identifier and the layer
2 channel in the multicast's PPPoE encapsulated traffic, to further
encapsulate the multicast's PPPoE encapsulated traffic with a second
delivery protocol, and to transmit the multicast's PPPoE encapsulated
traffic;

a customer premise equipment (CPE) coupled with the network element, the

CPE to decapsulate the multicast's PPPoE encapsulated traffic from the second delivery protocol and to transmit the multicast's PPPoE encapsulated traffic; and

a host coupled with the CPE, the host to receive the multicast's PPPoE

encapsulated traffic, to determine if the host is listening for the layer 2 channel indicated in the multicast's PPPoE encapsulated traffic, and to decapsulate the multicast's traffic from PPPoE if the host is listening on the indicated layer 2 channel.

22. (Original) The system of claim 21 wherein the multicast is a streaming video.

23. (Original) The system of claim 21 wherein the multicast is a collaboration application.

24. (Original) The system of claim 21 wherein the layer 2 channel is an Ethernet Media Access Control address.

25. (Original) The system of claim 21 wherein the layer 3 channel is an Internet Protocol address.

26. (Currently Amended) The system of claim 21 wherein the ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) session identifier is a reserved PPPoE session identifier.

27. (Currently Amended) The system of claim 21 further comprising a bridge coupled with the network element, the bridge to receive the multicast's ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) encapsulated traffic further encapsulated with the second delivery protocol and to transmit the multicast's PPPoE encapsulated traffic further encapsulated with the second delivery protocol to the ~~CPE~~customer premise equipment (CPE).

28. (Currently Amended) A machine-readable medium that provides instructions, which when executed by a set of one or more processors, cause said set of processors to perform operations comprising:

requesting a ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) session;

transmitting an indication of PPPoE multicast capability;

receiving notification of a layer 3 multicast channel for a multicast;

generating a layer 2 multicast channel from the layer 3 multicast channel;

receiving a packet of the multicast, the packet having a PPPoE

encapsulation;

if the PPPoE encapsulation indicates a PPPoE multicast session, then

determining if the PPPoE encapsulation indicates the layer 2 multicast

channel;

decapsulating the packet from the PPPoE encapsulation if the PPPoE encapsulation indicates the layer 2 multicast channel; and
discarding the packet if the PPPoE encapsulation does not indicate the layer 2 multicast channel.

29. (Currently Amended) The machine-readable medium of claim 28 wherein requesting the ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) session comprises transmitting a ~~PADR~~PPPoE Active Discovery Request (PADR) message to an access concentrator.

30. (Currently Amended) The machine-readable medium of claim 28 wherein the indication of ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) multicast capability is a tag in a ~~PADR~~PPPoE Active Discovery Request (PADR).

31. (Currently Amended) The machine-readable medium of claim 28 wherein the ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) multicast session is identified by a reserved PPPoE session identifier.

32. (Original) The machine-readable medium of claim 28 wherein the multicast is streaming audio.

33. (Original) The machine-readable medium of claim 28 wherein the multicast is streaming data for a ticker.

34. (Currently Amended) A machine-readable medium that provides instructions, which when executed by a set of one or more processors, cause said set of processors to perform operations comprising:

generating a layer 2 multicast channel from a layer 3 multicast channel;
receiving a multicast packet for the layer 3 multicast channel;
encapsulating the multicast packet with a ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) encapsulation;
indicating in the PPPoE encapsulation the layer 2 multicast channel and a PPPoE multicast session identifier; and
transmitting the PPPoE encapsulated multicast packet.

35. (Original) The machine-readable medium of claim 34 wherein the layer 2 multicast channel is an Ethernet Media Access Control address.

36. (Original) The machine-readable medium of claim 34 wherein the layer 3 multicast channel is an Internet Protocol address.

37. (Currently Amended) The machine-readable medium of claim 34 wherein the ~~PPPoE~~Point to Point Protocol over Ethernet (PPPoE) multicast session identifier is a reserved PPPoE session identifier.